



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 710 827 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
23.04.1997 Bulletin 1997/17

(51) Int. Cl.⁶: **G01L 23/18**, G01L 9/00,
G01L 19/04, G01L 19/14

(43) Date of publication A2:
08.05.1996 Bulletin 1996/19

(21) Application number: **95117443.2**

(22) Date of filing: **06.11.1995**

(84) Designated Contracting States:
DE FR GB IT SE

(30) Priority: **07.11.1994 JP 272174/94**
27.03.1995 JP 67744/95

(71) Applicant: **MATSUSHITA ELECTRIC INDUSTRIAL**
CO., LTD.
Kadoma-shi, Osaka-fu, 571 (JP)

(72) Inventors:
• **Kusakabe, Hiroki**
Osaka City, 540 (JP)

• **Okauchi, Tohru**
Ikoma City, 630-01 (JP)

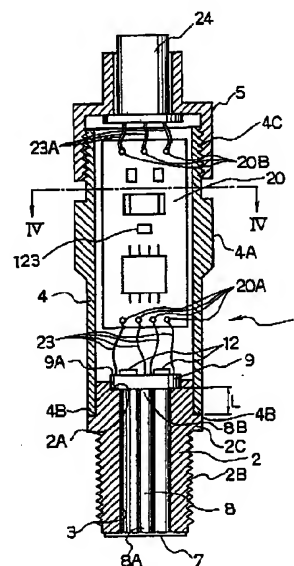
• **Takigawa, Masuo**
Ikoma City, 630-01 (JP)

(74) Representative: **Dr. Elisabeth Jung**
Dr. Jürgen Schirdewahn
Dipl.-Ing. Claus Gernhardt
Postfach 40 14 68
80714 München (DE)

(54) Combustion pressure sensor and fabrication method thereof

(57) A body of a combustion pressure sensor is divided into two parts, a cylindrical lower body (2) and a cylindrical upper body (4). A diaphragm (7) and a pressure sensing element (9) are attached to the lower end and the upper end of the lower body, respectively, and a pressure transmission member (8) connects the diaphragm and the pressure sensing element. The upper body is connected to the lower body to cover the pressure sensing element in such a manner that the connection part is disposed remote from the pressure sensing element.

FIG. 1



EP 0 710 827 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 11 7443

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Y	US 4 017 819 A (PIEN) * column 2, line 64 - column 3, line 24; figure 1 *	1-4	G01L23/18 G01L9/00 G01L19/04 G01L19/14
D,Y	EP 0 145 146 A (FORD - WERKE AG.) * page 5, line 25 - page 6, line 17; figure 2 *	1-4	
A	US 3 168 718 A (D. P. SWARZ ET AL) * the whole document *	1-4	
A	EP 0 561 397 A (MATSUSHITA ELECTRIC INDUSTRIAL CO. LTD.) * abstract; figure 1 *	1	
A	US 4 586 018 A (BETTMAN) * column 3, line 32 - line 55; figure 2 *	5	
A	ELEKTROTECHNIK, vol. 67, no. 23/24, December 1985, WÜRZBURG, DEUTSCHLAND, pages 22-28, XP002025956 DÖSEL ET AL.: "silizium unter druck" -----	5	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			G01L
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 25 February 1997	Examiner Zafiropoulos, N
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

EPO FORM 1503 01.82 (P04C01)



European Patent Office

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing more than ten claims

- ☐ All claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for all claims.
- ☐ Only part of the claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and those claims for which fees have been
namely claims:
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of the unity of the invention and relates to several inventions or groups of inventions, namely:

- ☒ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims
- ☐ Only part of the further claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respects of which search fees have been paid,
namely claims:
- ☐ None of the further claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims,
namely claims:



European Patent Office

EP 95 11 7443 - B -

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirement of unity of invention and relates to several inventions, namely:

1. Claims 1-4 : Combustion pressure sensor.
2. Claim 5 : Method of making a pressure sensing element.